

CLAIMS

1. A wide dispersion speaker system comprising:
a cone type speaker unit; and
a restricting element, wherein
the cone type speaker unit has a diaphragm,
the restricting element is configured to cover the diaphragm from forward,
the restricting element is provided with a center hole and a peripheral hole,
the center hole is positioned forward relative to a center section of the diaphragm,
the peripheral hole is positioned radially outward relative to the center hole,
a sum of an area of the center hole and an area of the peripheral hole is smaller than an area of the diaphragm,
the restricting element has an annular sound travel inhibiting portion positioned radially outward relative to the center hole and radially inward relative to the peripheral hole, and
an outer end in a radial direction of the sound travel inhibiting portion is positioned at a substantially middle point between an outer end in the radial direction of the center hole and an outer end in the radial direction of the peripheral hole, or positioned radially outward relative to the substantially middle point.

2. The wide dispersion speaker system according to claim 1, wherein the outer end in the radial direction of the peripheral hole is positioned in the vicinity of a peripheral edge portion of the diaphragm in the radial direction.

3. The wide dispersion speaker system according to claim 1 or 2, wherein the peripheral hole is formed to surround an entire periphery of the center hole.

4. The wide dispersion speaker system according to claim 1 or 2, wherein the peripheral hole is one of a plurality of peripheral holes which are configured to be distributed to surround the entire periphery of the center hole.

5. The wide dispersion speaker system according to claim 1 or 2, wherein the peripheral hole is formed to surround the center hole in an angular range of not less than 180 degrees around a center axis of the cone type speaker unit.

6. The wide dispersion speaker system according to claim 1 or 2, wherein the peripheral hole is one of a plurality of peripheral holes which are configured to be distributed to surround the center hole in an angular range of not less than 180 degrees around a center axis of the cone type speaker unit.

7. The wide dispersion speaker system according to claim 5 or 6, wherein the peripheral hole is configured not to be formed in an angular range of not less than 45 degrees around the center axis of the cone type speaker unit.
8. The wide dispersion speaker system according to claim 4 or 6, wherein the peripheral hole is a slit hole extending in the radial direction.
9. The wide dispersion speaker system according to claim 8, wherein the peripheral hole has a slit width smaller than a depth of the peripheral hole.
10. The wide dispersion speaker system according to any one of claims 1 to 9, wherein the peripheral hole is disposed non-symmetrically with respect to a center axis of the cone type speaker unit.
11. The wide dispersion speaker system according to any one of claims 1 to 10, wherein a diffuser is mounted forward relative to the center hole.
12. A cover mounting structure for an instrument directly mounted to a flat portion, comprising:

an instrument body directly mounted to the flat portion; and
a cover mounted to the instrument body so as to cover a front face
of the instrument body, wherein

the instrument body is provided with a body engagement portion
at a peripheral edge portion of a substantially circular shape,

the cover is provided with a cover engagement portion at a position
corresponding to the body engagement portion,

the body engagement portion has a rear face extending in a
circumferential direction, a first protrusion formed at a base end in a
direction in which the rear face extends and configured to protrude
rearward further than the rear face, and a second protrusion formed at
a tip end in a direction in which the rear face extends and configured to
protrude rearward further than the rear face,

the cover engagement portion has a front face extending in the
circumferential direction, and a third protrusion formed at a tip end in
a direction in which the front face extends and configured to protrude
forward further than the front face, and

the body engagement portion is provided in the instrument body
and the cover engagement portion is provided in the cover to allow the
front face of the cover engagement portion to be positioned rearward
relative to the rear face of the body engagement portion, with the cover
mounted to cover the instrument body from forward.

13. A cover mounting structure for an instrument directly mounted to
a flat portion, comprising:

an instrument body directly mounted to the flat portion; and
a cover mounted to the instrument body so as to cover a front face
of the instrument body, wherein

the instrument body is provided with a body engagement portion
at a peripheral portion of a substantially circular shape,

the cover is provided with a cover engagement portion at a position
corresponding to the body engagement portion,

the cover engagement portion has a front face extending in a
circumferential direction, a first protrusion formed at a tip end in a
direction in which the front face extends and configured to protrude
forward further than the front face, and a second protrusion formed at a
base end in a direction in which the front face extends and configured
to protrude forward further than the front face,

the body engagement portion has a rear face extending in the
circumferential direction, and a third protrusion formed at a base end
in a direction in which the rear face extends and configured to protrude
rearward further than the rear face, and

the body engagement portion is provided in the instrument body
and the cover engagement portion is provided in the cover to allow the
front face of the cover engagement portion to be positioned rearward
relative to the rear face of the body engagement portion, with the cover
mounted to cover the instrument body from forward.

14. The cover mounting structure for an instrument directly mounted
to a flat portion according to claim 12 or 13, wherein the body

engagement portion is one of a plurality of body engagement portions provided in the instrument body and the cover engagement portion is one of a plurality of cover engagement portions provided in the cover such that the plurality of body engagement portions are respectively positioned to correspond to the plurality of cover engagement portions

15. The cover mounting structure for an instrument directly mounted to a flat portion according to any one of claims 12 to 14, wherein a part or all of the first protrusion, the second protrusion, and the third protrusion is flexible forward and rearward.

16. The cover mounting structure for an instrument directly mounted to a flat portion according to any one of claims 12 to 15, wherein the instrument directly mounted to the flat portion is a ceiling-embedded speaker system,

the instrument body has a speaker unit, and
the cover is a sound-transmissible cover.